WE CLAIM:

1. In a CPAP apparatus having (i) a blower, (ii) a patient interface for a patient, (iii) an air delivery conduit for delivering air from the blower to the patient interface, (iv) a sensor adapted to determine the pressure in the patient interface, (v) a sensor adapted to determine the flow of air to the patient, (vi) a synchrony module programmed to determine transitions between inspiration and expiration of a patient's breathing cycle from at least one sensor and (vii) a control mechanism programmed to provide a supply of air at positive pressure in accordance with a predetermined pressure-time template,

a method of controlling the blower operation comprising the steps of:

automatically determining at least one index indicative of the presence of sleep disordered breathing from the pressure or flow sensors,

automatically determining a treatment pressure in accordance with the index of sleep disordered breathing,

setting at least one characterising parameter of the pressure-time template to the treatment pressure,

controlling the blower to deliver a supply of air at positive pressure to the patient in accordance with the template and in synchrony with the patient's breathing cycles as determined by the synchrony module.

2. A method as claimed in claim 1 wherein the index indicative of the presence of sleep disordered breathing is a function of one or more of flow flattening, snoring, apnea and hypopnea exhibited in the patient's inspiratory flow-time curve.

3. A method in accordance with claim 1 in which said template is one of a square wave and a shark-fin wave.

4. A method in accordance with claim 1 in which the characterising parameter is a minimum, maximum or mean.

5. A method in accordance with claim 1 in which the characterising parameter is an EPAP or an IPAP.

6. A method in accordance with claim 1 in which the characterising parameter is an end expiratory pressure (EEP).

7. A method in accordance with claim 1 in which the pressure-time template has minimum and maximum pressure values.

8. A method in accordance with claim 1 in which the pressure delivered to the patient has a minimum value.

9. A method in accordance with claim 8 in which the minimum pressure delivered to the patient is about 4 cmH_2O.

10. A method in accordance with claim 1 in which the pressure-time template has a fixed swing.

11. A method in accordance with claim 1 in which the pressure-time template has a small swing when the treatment pressure is low.

12. A method in accordance with claim 1 further comprising the step of determining a second index of sleep disordered breathing.

13. A method in accordance with claim 12 wherein the first index is indicative of apneas and the second index is indicative of flow flattening.

14. A method in accordance with claim 13 further comprising the step of determining a second treatment pressure in accordance with the second index of sleep disordered breathing.

15. A method in accordance with claim 14 further comprising the step of setting a second characterising parameter of the pressure-time template to the second treatment pressure.

16. A method in accordance with claim 15 further comprising the step of setting an EPAP pressure to the first treatment pressure and an IPAP pressure to the second treatment pressure.

17. A method in accordance with claim 1 wherein said pressure-time template is stored in look-up tables or arrays.

18. In apparatus comprising a blower adapted to provide a supply of air at positive pressure, a nasal patient interface, an air delivery tube connecting the blower to the patient interface, a flow sensor adapted to monitor the flow of air to a patient along the air delivery tube, and a microprocessor, a method of detecting the presence of mouth leak comprising the steps of:

determining leak flow during an inspiratory portion of the respiratory cycle of the patient from the flow sensor;

calculating a leak volume during inspiration from the leak flow during an inspiratory portion;

determining leak flow during an expiratory portion of the respiratory cycle of the patient;

calculating a leak volume during exhalation from the leak flow during the expiratory portion;

flagging that mouth leak has occurred when leak volume during exhalation exceeds leak volume during inhalation by a threshold.